

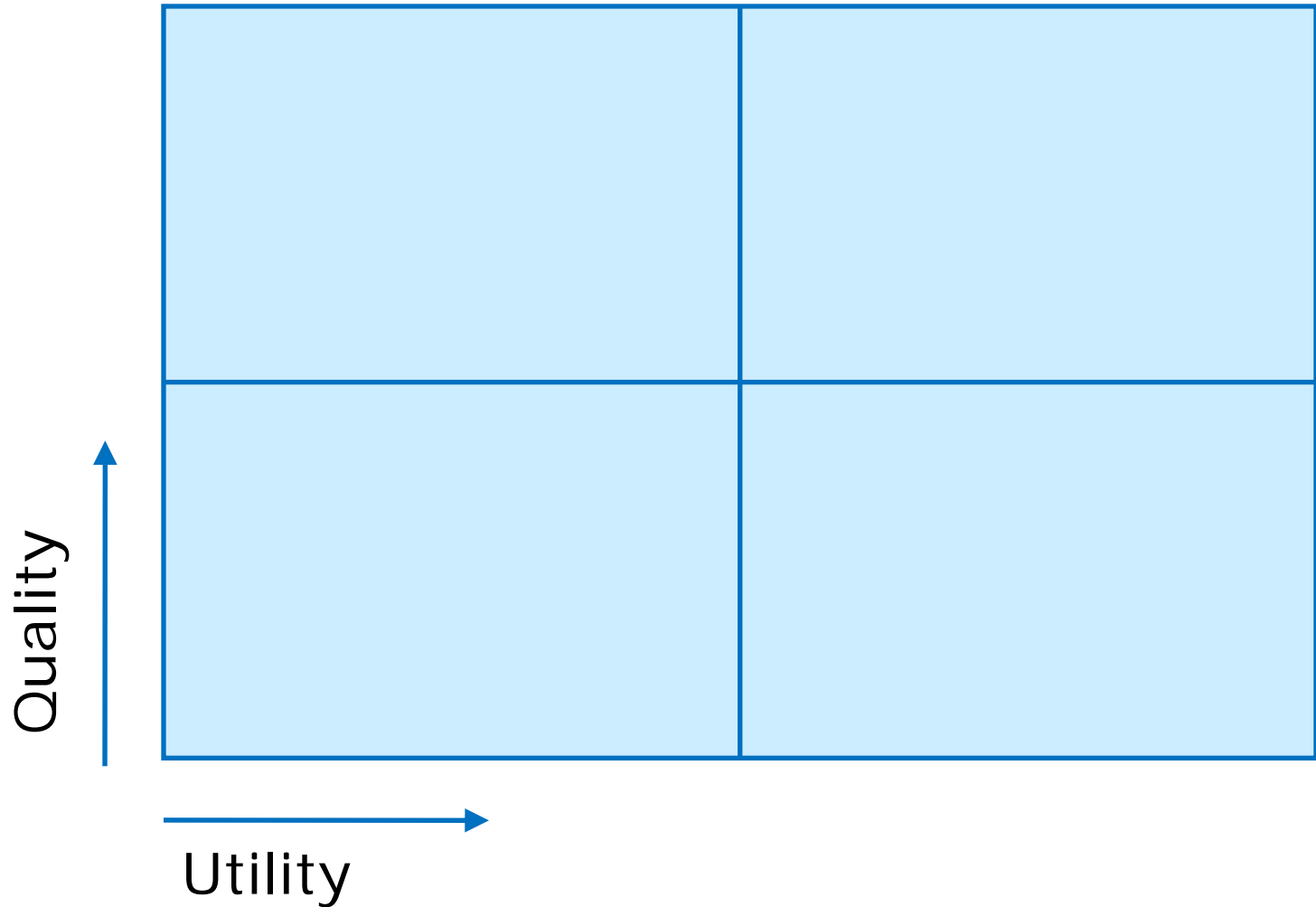
Sci-Tech Europe Innovation across Europe

Collaborative European Research

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European Science Foundation

Brussels, 12 November 2009

Pasteur's quadrant



Pasteur's quadrant

Bottom Left – low quality low utility

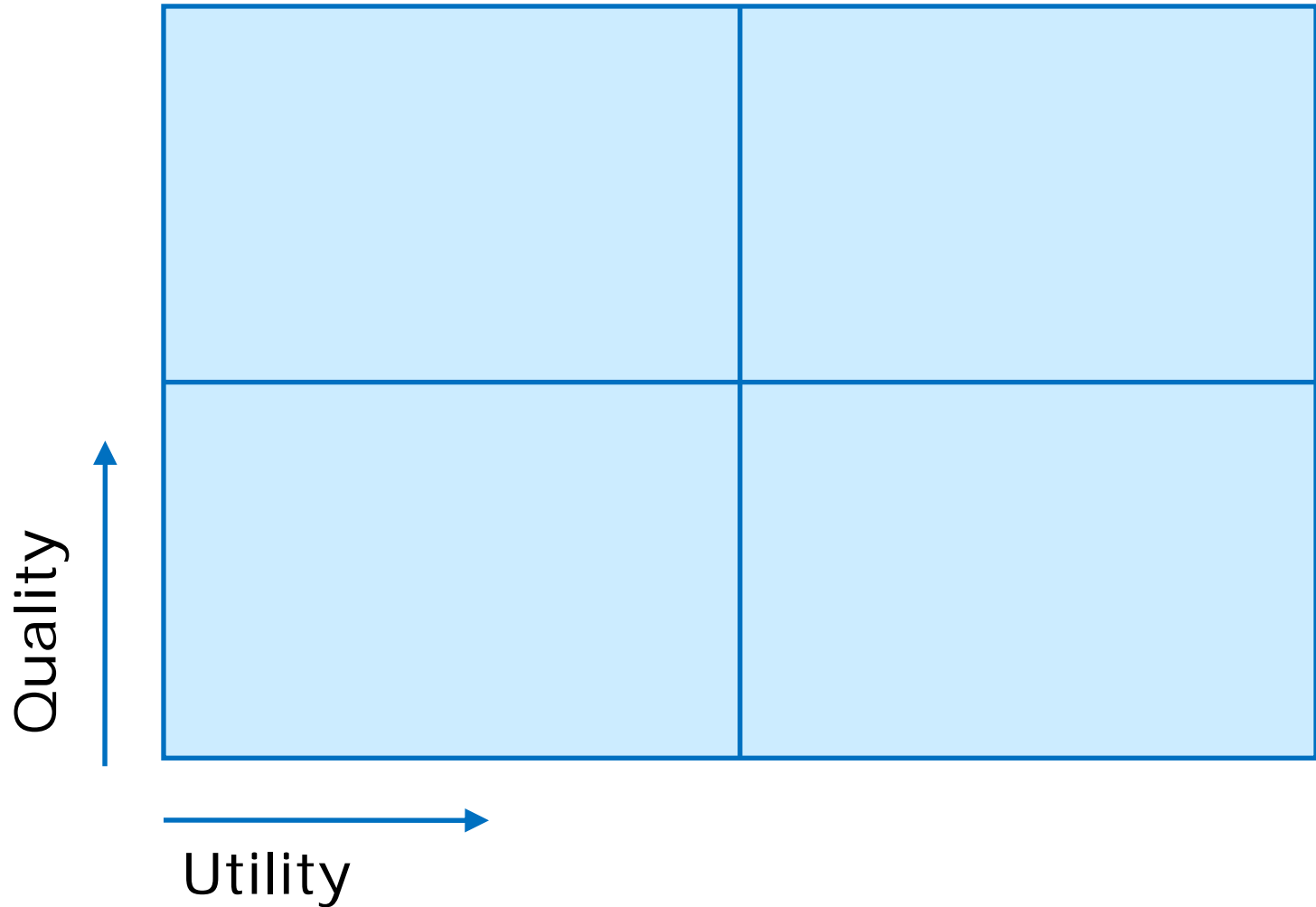
- Low quality research characterised by lack of originality, lack of new findings
- Incremental advances, redundant
- No significant utility, as disruptive innovations based on original new knowledge
- Nevertheless broad base of research in all fields is essential to ensure innovation
- This category the most expensive one, consumes most of resources

Pasteur's quadrant

Top Left – high quality low utility

- Quality research characterised by originality, production of new knowledge
- All researchers thrive, few achieve
- Novel fantastic development: Populated by more and more young Pis
- Quality research, in absence of understanding of utility, expands mankind's knowledge base
- This category is basis for ground-breaking innovations changing the world
- Inventions sparkle from new findings nobody could imagine to ask for
- Allocating resources and developing environments for quality research to bloom is key for innovation

Pasteur's quadrant



Pasteur's quadrant

Top Right – high quality high utility

- Quality research with relevance
- Louis Pasteur role model:
 - Original totally new knowledge, immediate societal relevance
 - Public health – vaccination
 - Private sector – brewing and dairy industry
- Exceptional talents who push frontiers of knowledge and understand applicability of their findings
- Courage and stamina to drive forward fundamental and applicational research in parallel
- Applications sparkle new questions for fundamental research and vice versa
- Millennium Technology prize: ground-breaking technologies, proven utility, advancing quality of life
- Free research, no programmes, based on talent and creativity of individuals
- If this is our ambition – ERIA instead of ERA

Pasteur's quadrant

Bottom Right –low quality high utility

- Legitimacy of low originality (quality) high utility research
- Incremental advances which necessary for development of technologies
- Role model Edison: forbid his staff to come up with new ideas

High quality basis for innovation

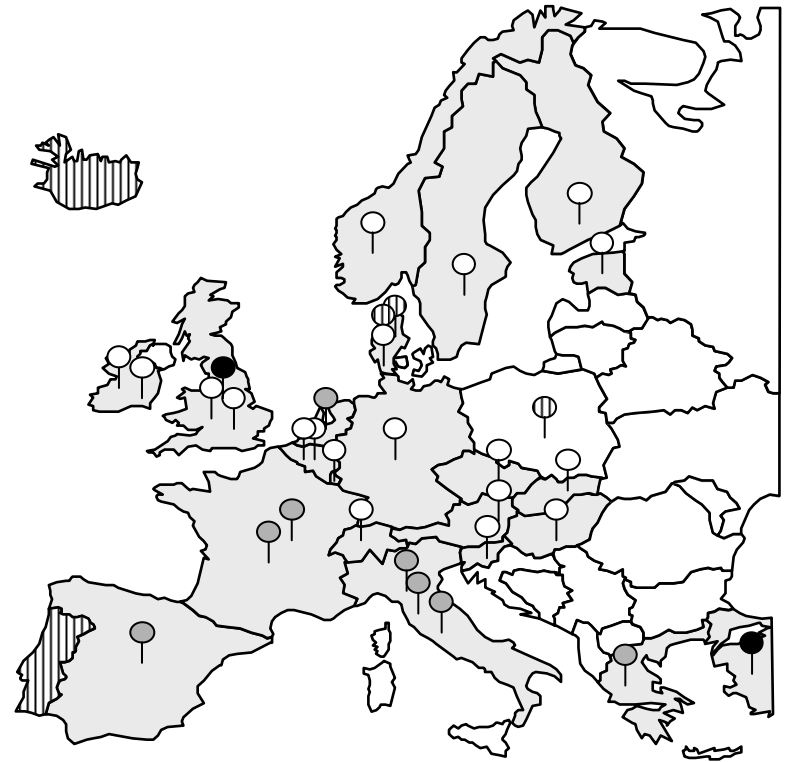
- Thus we need to reinforce Top Left quadrant, quality fundamental research (bottom-up)
- While ensuring return of investment to society by broad definition of priorities (top-down)
- Nothing boosts quality like
 - International competition for funds
 - Collaboration with international quality peers
- Ntl isolation of competencies, techniques, infrastructure, industrial partners is history
- This is why collaboration at European level in funding and research is of utmost importance
- EC's research funds represent 5-8% of European resources
- What about the 85% managed nationally? How much used for international collaboration?

Background

- Ministers of Research (Lisbon, January 2009) requested information on direct cross-border collaboration between research funding and performing organisations outside of FPs
- EUROHORCs (Heads of European Research Councils, public RF/POs managing 85% of funds) invited European Science Foundation (ESF) to carry out survey
- Preliminary data, to be complemented by data from 16 non-EUROHORCs funding agencies

Responses from EUROHORCs

- 35 / 42 EUROHORCs organisations responded
 - 25 RFOs
 - 8 RPOs
 - 2 mixed; MRC and Tübitak
- Geographical coverage
 - 25 countries targetted
 - 2 did not respond (PT, IC)
- Different concepts
- Huge differences in budgets and GDPs



Main findings 1/3

- Share of budget for European collaboration
 - Highest relative budget, amongst them some with small total budgets: GR, IT, LU, PL, SE
 - Level of share not related to absolute level of resources
- Bi- or multi-lateral programmes
 - DE, FR, IT, Nordic countries: champions
 - Multi-lateral collaborations: D-A-CH, NORDFORSK, ESF
- Cross-border funding
 - 14/35 organisations: joint schemes with common pot
 - 12/35: joint schemes without common pot

Main findings 2/3

- EUROHORCs Money Follows Researcher agreement 2005
 - Half have signed, 12 have implemented
 - Implementors: D-A-CH countries, Flemish BE, LU
 - Case-by-case implementors: DE, SE, UK
- Openness of national programmes to non-resident researchers
 - Half have opened their programmes
 - Some RPOs have units abroad
- Formal agreements beyond Europe
 - DE, ES, FI, FR, IT: champions
 - Mostly with China > USA > India, Japan, Russia, South Korea > Taiwan

Main findings 3/3

- Joint research projects implemented by researchers in absence of formal agreements
 - no records available
- Publications stemming from international collaborations funded by EHs of different countries
 - Records mostly not kept, or data not mined
 - Unexpected as this is a crucial indicator

Demands from researchers

- More **funds** for cross-border collaboration
- More cooperation **agreements**
- More resources for researchers' **mobility**
- Simplification of reviewing **procedures** of joint programmes
- More opportunities to use international **large-scale facilities** enabling long-term international cooperation



ERA 2030: ERAB's STRATEGIC VIEW

October 2009

An ERA of open innovation: all public and private stakeholders

The ERA Milestones

We will know the ERA is a common market and thriving place for open innovation in 2030 when we see:

- A pan-European 'Open Innovation' charter is signed by all major stakeholders.
- A pan-European label, 'Open Knowledge Institution', for higher education and research acts as a gold standard for excellence in innovation in the ERA.
- Overall R&D funding rises to 5% of GDP, of which industrial R&D accounts for 2/3.
- 2% of public procurement ERA-wide is earmarked for innovative and pre-commercial technologies, and is open to European-wide competition.
- Mobility of researchers between the public and private sector is high, and industrial funding of academic research accounts for 1/3 of the overall research budget.
- Risk capital available for early-stage technology development triples, to 0.15% of GDP.